**Scales, Strategies and project interdependencies in the NBDC program (thought piece for discussion)**

2. SCALES – *DO WE HAVE COMMON UNDERSTANDING AND ARE WE ADDRESSING THE RIGHT ONES WITH OUR METHODS?*

Scale can be defined as the extent of a problem studied (e.g. plot, farm, ecosystem, landscape). A related concept is the one of resolution, which is referring to the level of detail that is captured within the extent.

Primary scale of interest to N2 is the landscape as defined in the proposal:

“A combined physical and social unit large enough to encompass the range of land uses on which local communities depend, either directly for provisioning ecosystem services (food, fiber, livestock, trees) or regulating services (watershed functions), and a range of social institutions which are directly responsible for resource management.”

A landscape is distinct from its neighbours.

Analysing RMS at landscape level requires:

* A systems approach
* Concurrently taking into account of environmental, social and cultural components
* Considering human welfare losses due to environmental degradation and the true costs and benefits of environmental protection.
* Taking account of multiple stakeholders with sometimes different land use objectives
* The recognition of overlapping cultural, social and governance landscapes within biophysically defined areas (or vv)

For this project we have chosen the Woreda to represent this landscape scale. Defined by a political boundary, it represents a meso-scale (biophysically between small watersheds and Basin, and socially/decision making between community and state).

This meso/landscape scale is a key innovative feature of the research projects.

In addition to capacity building, engaging in policy and research networks etc:

N2 is responsible to:

*(note this is in the very simplest terms)*

1.Define RMStrategies for intervention that are relevant to the landscape (Woreda) -and provide guidance on identifying RMS

Measure the impacts of these strategies on:

a. Livelihoods (&equity)

b. WP (SYSTEM WP crops, livestock, trees) AT LANDSCAPE SCALE

c. Environment

(This to be done based on existing interventions more than implementing new infrastructure or other interventions, and scenarios, micro watershed used for primary hydrology data to support b, and hydrologic modeling improvement at larger scales too)

2. Analyze policy and institutional environment that contribute to or constrain success of RMStrategies

a. formal and informal institutions

b. planning, implementation and adoption actors AT LANDSCAPE

c. process of change and policy options (and maybe larger)

3. Strategies for Ethiopia Blue Nile and Scenarios AT LANDSCAPE SCALE

N3 is responsible targeting and extrapolation (investment advice):

*(note this is in the very most simple terms)*

To be achieved through:

1. Similarity analysis of various units, mostly Woreda

2. Matching Strategies (or interventions?) (from N2 &

others) to map-able indices(suitability maps) BLUE NILE

3. Mapping possible scaling out potentials

4. Mapping recommendation domains

N4 is responsible to:

*(note this is in the very most simple terms)*

1. Predict impact of widescale adoption of strategies on:

a. Flows of water and sediment

b. Productivity and WP BLUE NILE

c. Poverty/livelihoods

d. Institutional consequences

2. Provide best lands use practices (productivity, WP, livelihood, economics) at BLUE NILE SCALE??

3. Water savings (Green /Blue SEI)

3. RECOMMENDATION DOMAINS

A recommendation is information that farmers can use to improve the productivity of their resources (CIMMYT, 1988). Because it is impossible to make a separate recommendation for each farmer practical compromises have to be made. This is typically done by stratifying the farmers into groups as homogeneous as possible.

We’re implementing this concept on landscapes instead of on farmers.

Recommendation domains are spatially defined areas characterized by similar

* Constraints and priorities
* Potentials

3.1 Constraints and priorities

Example constraints: availability of water, access to water, water productivity, resource degradation, soil erosion, slope, soil fertility, climate variability, climate change, limited market access, in-efficient institutions/institutional arrangements, un-suitable policies, lack of public investment, lack of technical skills and knowledge, lack of modern inputs, lack of suitable soil and crop management

Different priorities possible, e.g.: poverty reduction, food security, increased productivity, sustainable production, …

Defining/analyzing constraints and priorities ~ GOALS ~ RMS definition (see above)

3.2 Potential

The potential is defined by suitability and impact

* Step 1: suitability maps for each practice (only current or also future?)
* Step 2: clusters of targeted best-bet interventions / strategies (matched to priorities and constraints from above? Strategies coming from N2?)

🡪 identify landscapes within the basin where certain strategies might work

* this feeds into the development of scenario’s
* Step 3: impact assessment (is there also cost/benefit analysis?)

4. PROJECT INTERDEPENDENCIES

Ideally project dependencies are something like:

N2 Strategies are basis for N3 mapping and, through scenarios, for N4 impact assessment

N2 landscape impacts on WP livelihoods and environment used to ‘ground truth’ validate or somehow confirm or make more accurate N3 and N4 mapping and impact assessment (this must be post field work, so not before 3 and 4 develop methods/models…

N3 can confirm/demonstrate applicability/out-scaling potential of N2 RMS and interventions

Scenarios used by any (N2, N3, N4, N5) are consistent with others at least in a way that is easily communicated

1. RMS – *WHAT ARE WE TALKING ABOUT?*

As a starting point for discussion the following concepts are defined, hopefully in a way that is useful to all three projects.

1. Practice: a way of doing something; this suggests that an actor (farmer or community) decides to do something
2. Intervention: anything done to achieve a practice change
3. Level (of organization): the unit at which a decision is taken

A strategy would then be a combination of practices at different locations within the landscape aiming at a specific goal.

Strategies would define this goal with attention to possibilities for measurable change (through scenarios) in e.g. water, ecosystem services, tree cover, or livelihoods that is scalable (mapable).

Strategies should be specific to each N2 case study with attention to differences in state of development, ecosystem factors, actors, and promising entry points/opportunities.

Strategies would be achieved through ‘interventions’ that would be both biophysical or social, sometimes mainly social….

*Example*

Strategy:

Increase overall water retention and productive use in the landscape.

Or more detailed:

Increase tree cover overall, implement other soil water conservation measures to reduce land degradation in highlands, and increase water control in midlands and lowlands to stabilize and increase overall productivity and buffer against dry spells and climate variability.

Practices:

Biophysical

Ag water management – small scale irrigation; groundwater development; rainwater harvesting; soil water management

Soil conservation measures: reforestation, gully rehabilitation

Agroforestry, multipurpose trees and fruit trees

Grazing pressure management

Livestock fodder improvement

Social / economic

Collective action

Marketing of products

Interventions:

Change in agricultural production systems

Increase capacity of communities for collective action

Increase capacity of planners to use improved integration tools (by sector and landscape niche)

Increase access to markets

economic instruments (PES)

Bio-physical and social interventions are intimately linked. Depending on the practice change needed/wished, there might be a need for social intervention (like building communities/platforms). One could look at ecosystem services resulting from water related practices as a transaction and use concepts from new institutional economics to link “bio-physical interventions” to “social interventions”. Such an approach can take among others take property rights or intangible values into account.

river



Zone 1 : practices A, B, C

Zone 2, practices D, E, F

Zone 3 : practices G, H, I

Figure 1 : landscape as described by Bharat